# Clinical Uses of Cellerate Rx

## "Activated Collagen"

Dr. Jane Fore MD, FAPWCA, FACCWS

Powder and Gel

Wound Care Innovations

Ft. Lauderdale, Florida

# Applications

- Ulcers with undermining
- Tunnels
- Combining with antibiotics and other biological dressings
- Skin Tears and Flaps
- Burns

# Application

- Powder
- Gel – topical and injection
- Paste – topical and injection
- Combine with topical antimicrobials – tobramycin, vancomycin, polymyxin, doxycycline, gentamicin
- Combine with Collagenase Santyl, Regranex, living skin equivalents

# Collagen is….

- Biocompatible
  - Does not interact with other wound products or wound tissue in an adverse way.
  - It does not need to be removed from the wound.
  - It is safe for ingestion so can be used on all ages and does not harm if ingested.
  - It does not hurt and tends to be soothing to the wound due to coverage of the open wound.
  - Rare allergy.  Bovine collagen very similar.

# Science

- Type 1 Collagen most abundant collagen, over 90% of collagen is type 1 and 30% of total body protein is collagen
- Collagen is synthesized by fibroblasts
- Native collagen has many cross-links of fibrils that increase resistance to breakdown – inter and intra molecular connections

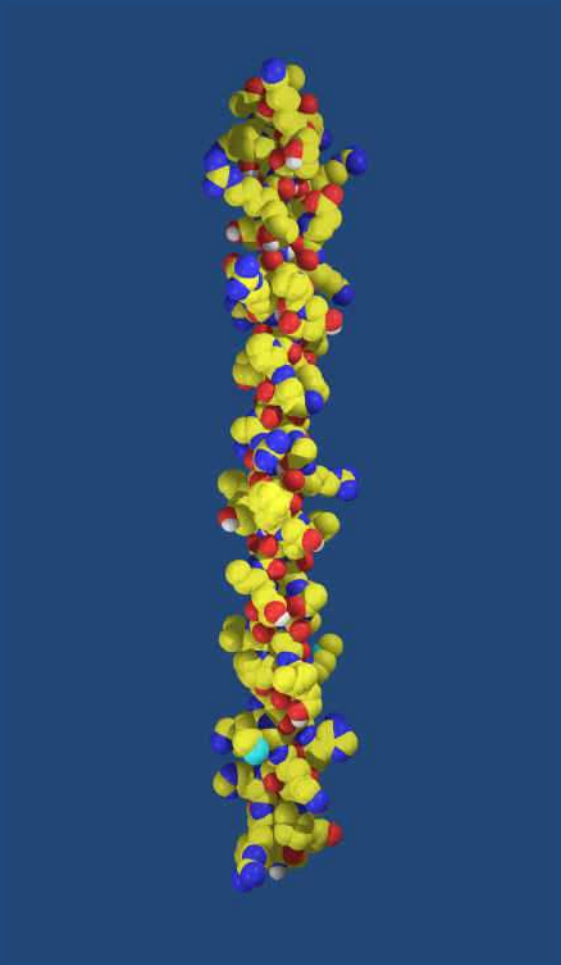
# Science

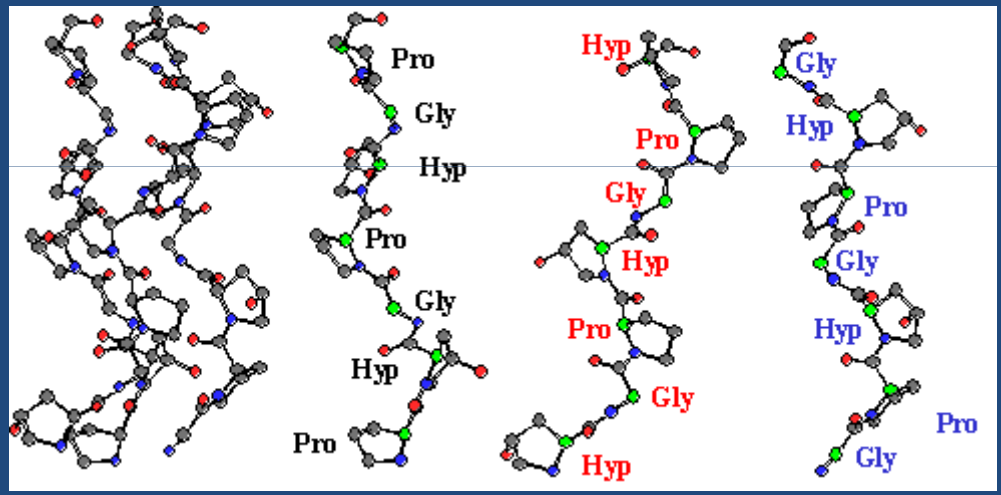
- Type I Bovine Collagen  from young calves
  - Water is the other ingredient- no additives
- FDA cleared for all wound types except third degree burns
- Hydrolyzed, not denatured , 1000 Daltons, maintains basic structure (usual monomer is 300,000 daltons)
- Does not support bacterial growth
- “Activated” proprietary version- immediately bioavailable

# Science

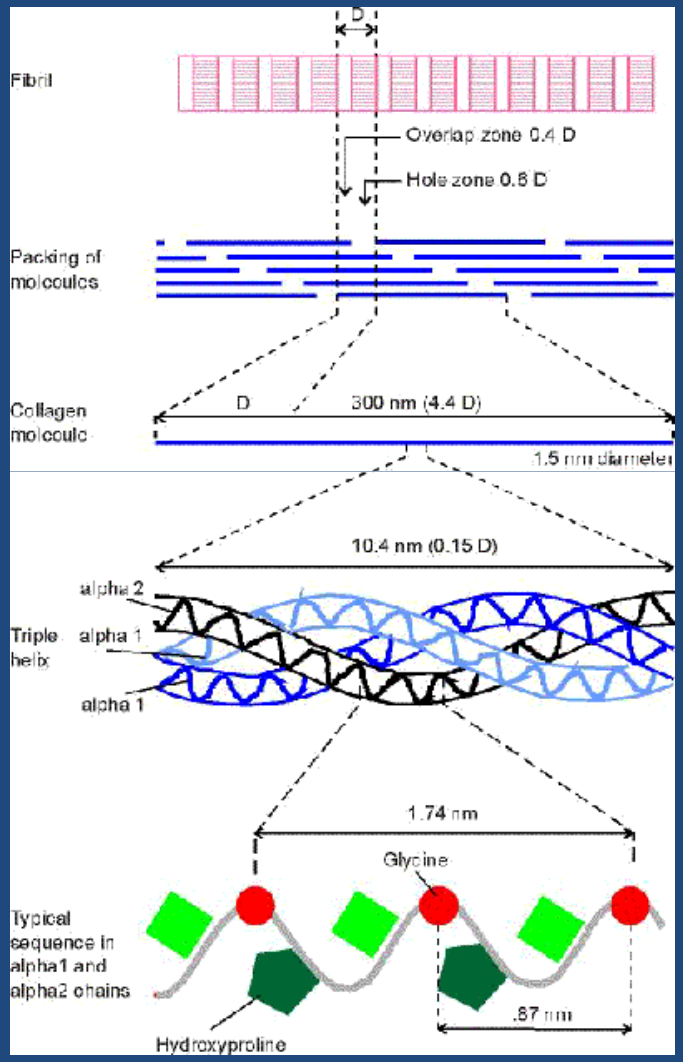
- Native collagen requires the action of collagenase type 1 (MMP1) to become bioavailable for further breakdown
- No synthetic additives, non-toxic, non-allergenic
- Gel- approximately 65% “activated” collagen
- Powder-  approximately 96% “activated” collagen
- No need to remove, always biocompatible and compatible with any other product okay for wounds

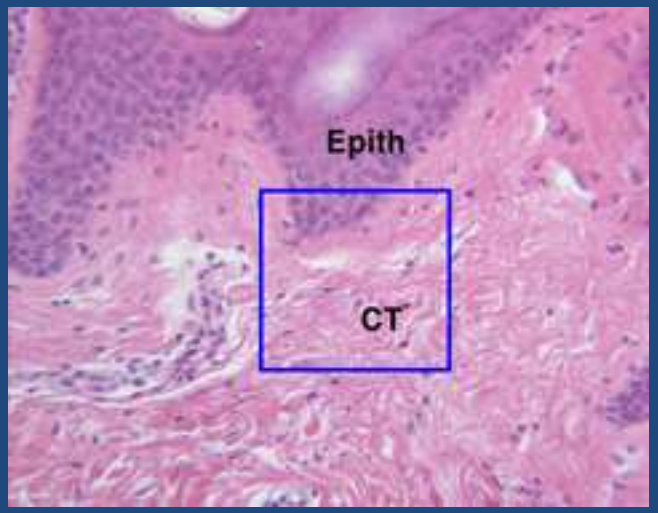
# Basic Triple Helix

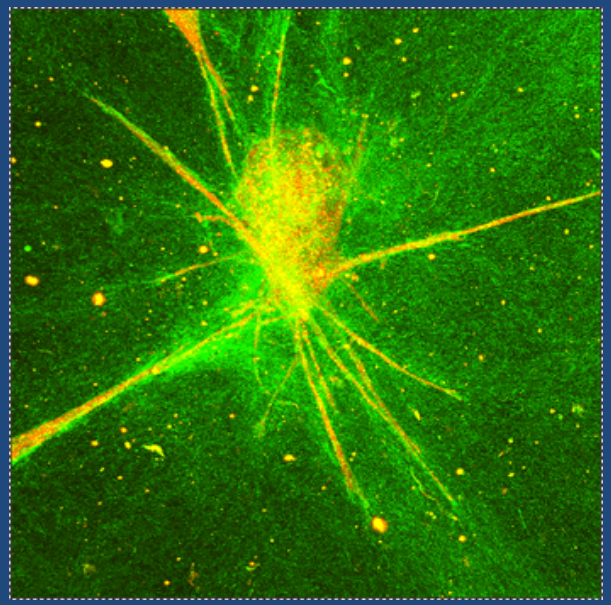




# Structure



Dr. Jane Fore

# Ulcers

- **Gel** – less exudates, thinner application of collagen, place in curved-tipped syringe or catheter application
- **Powder** – "puffed" into the wound, use of a tongue blade, thicker application of collagen, use with negative pressure wound dressing
- **Paste** – vary thickness depending on need, easy to apply, liquid with greater percentage of collagen

# Combining with antibiotics

- Delivery of antibiotics is difficult with decrease in blood supply and disruption of tissue
- Allows high concentration of antibiotic in areas where there may be a cavity
- Chemical property of collagen sustains activity of antibiotic release
- Dual activity of improvement of wound healing and antibiotic delivery in a biocompatible form

# Combine with antibiotics

## Vancomycin

- Use the powder and combine with powder, gel or paste of Cellerate Rx
- If pharmacist needs to formulate – 50 mg/cc of Cellerate Rx gel
- Order for nurses to apply powder to wound bed and then add the Cellerate Rx if questioned about nurses compounding
- Inject into tunnels

# Combine with antibiotics
## Tobramycin, Gentamicin, Polymyxin

- Done in a similar fashion as the vancomycin
- Tobramycin mixes very quickly and needs very little gel if making a paste
- Polymyxin topically combined with cellerate to the wound bed of burns is a great dressing

# Combine with antibiotics

## Doxycycline

- Powder, not crushed tablets, pharmacist will make up the powder capsules, open and add small amount to Cellerate Rx
- Do not combine with silver due to chelation
- Anti-inflammatory and antimicrobial
- 5-10% gels in literature, make a lightly colored gel or powder combination with doxycycline

# Skin Flaps
# Great salvage for skin flaps

1. Clean flap and wound bed with saline
2. Cavilon skin prep to periwound
3. Cellerate gel or powder to flap and wound bed
4. Flatten out the flap and especially edges to approximate to the skin edge
5. Secure with steri-strips
6. Cover with Mepilex foam or Telfa and cover with a film
7. Secure with comperm if needed also, helps edema and bruising and leaving dressing alone
8. Replace every seven days
9. Usually healed in seven days.

# Skin Care Study

## CellerateRx An Evidence Based Skin Tear Study: Interim Evaluation

*Dr. Jane Fore, MD - Cherie Rash, RN*
*Tri-State Wound Care and Hyperbaric Center, Clarkston, Washington*

*Skin tears, a common traumatic wound, often heal over a prolonged period of time. These wounds are most likely to occur in the frail, elderly population that have multiple co-morbidities and slow healing. The role of Hydrolyzed Collagen in promoting healing of these troublesome wounds is evaluated and compared with placebo controls. This study will provide evidenced based conclusions regarding the role of Hydrolyzed Collagen in the resolution of Skin Tears.*

*Study Method: Skin tears in at least 15 individuals, of varying Payne-Martin (1-3) scale severity and up to 48 hours old, will be treated by cleaning the wound, approximation of skin edges and coverage. Some of the group will have the additional step of an application of hydrolyzed collagen powder and/or gel to the wound bed before the skin edge approximation. Control wounds were treated identically but did not receive Hydrolyzed Collagen application. Presented herein are the interim study data on seven (7) patients enrolled in this study.*

*This information is presented as evidence based interim data on seven (7) patients with fourteen (14) skin tears. When possible, control comparisons were made between the treatments in the same person.*

*Conclusion:*

*The technique employing Hydrolyzed Collagen was very successful in saving the remaining skin flap seven to fourteen days sooner than those patients completed compared with controls. A majority were resolved within a week, with just one treatment. Closure with the use of hydrolyzed collagen increased the efficiency of healing. Both groups had relatively rapid resolution. Very distorted skin flaps were able to be salvaged using the collagen product in cases where the flap would normally have been felt to be a complete loss. A very effective technique for the treatment for skin tears and comparison with the additional benefit of the tested therapy will be reviewed analyzing cost, pain, time to healing, infection rate. Very distorted skin flaps were able to be salvaged using the collagen product in cases where the flap would normally have been felt to be a complete loss. The study continues in an effort to generate sufficient data points to determine statistical significance.*

*References:*

*1. Thomas DR, Goode PS, La Master K, Tennyson T, Parnell LK, A comparison of an opaque foam dressing versus a transparent film dressing in the management of skin tears in institutionalized subjects. Ostomy Wound Management 1999 Aug;45(8):6.*
*2. Ratliff CR, Fletcher KR, Skin tears: a review of the evidence to support prevention and treatment, Ostomy Wound Management, 200007 53(3):32-34.*
*3. Malone ML, Rozario N, Gavinski M, Goodwin J, The epidemiology of skin tears in the institutionalized elderly, J Am Geriatr Soc 1991 39(6):591-5.*
*4. Payne RL, Martin ML, Defining and classifying skin tears: need for a common language. Ostomy Wound Management, 1993, 39(5):16-20.*

Cellerate Rx ACTIVATED COLLAGEN (CRX®)

*CellerateRx® Hydrolyzed Collagen Powder and Gel, Wound Care Innovations LLC.

### Patient 1

- Age – 86 YO female
- Co-morbidities – chronic atrial fibrillation, unsteady gait, venous hypertension and current cellulitus and ulceration on leg, CHF, arthritis and impaired mobility so ambulates with a cane
- Medications – coumadin, furosamide, diltiazem, sertraline, hydrocodone

**Wound CellerateRX**

Day 1

Day 6
0.4 x 0.3 open

Day 9
0.4 x 0.3 open

Day 13
Closed

Day 20
new skin tear above but nicely healed

**Control Wound**

Day 1

Day 1

Day 7
1.5 x 1.0 pocket

Day 16
1.6 x 0.7 open

Day 24
Closed

### Patient 2

- Age – 73 YO male
- Co-morbidities – atrial fibrillation on coumadin, hepatic cirrhosis from NASH, CHF, Stage 3 CKD, CABG and MI
- Medications – coumadin, furosamide, spironolactone, metoprolol, multivitamins, hydrocodone/apap, midodrine, vit B 12

**Wound CellerateRX**

*Initial Appearance at the clinic*

*Removed film and then steri-strips to remove clot below the flap*

*After clots removed and cellerate RX gel injected*

**Follow Up**

Day 3

Day 8

Day 15

Day 22

Day 29

### Patient 3

- Age – 73 YO Female
- Co-morbidities – Advanced PVD and healing a wound on foot, HTN, CVA
- Medications – gabapentin, plavix, estrogen, amlodipine, tramadol, etc

**Wound CellerateRX**

Day 1

Day 7 - 0.15 x 02 cm open

Day 15 closed

**Control Wound**

Before Cleaning

Day 7
1.0 x 1.0 cm open partial flap loss

Day 14
0.5 x 0.5 cm open

Day 21
Closed

### Patient 4

- Age – 78 YO female
- Co-morbidities – polymyalgia rheumatica, chronic significant eczema, rapidly progressive polyneuropathy and foot drop, referred for leg ulcer 3 mo non-healing,
- Medications – chronic corticosteroids with kenalog injections every 1-3 months, 60 mg, telmisartan, hctz, gabapentin
- Other – Generally appears frail

**Wound #1 CellerateRX**

Day of Injury

Day 8

Day 23

**Wound #2 & #3 CellerateRX**

*Day 1 elbow(#2) forearm (#3)*

Day 3

Day 8

Day 15

Day 23

### Patient 5

- Age – 88 YO female
- Co-morbidities – nursing home, poor functional status, depression, refractory clostridium difficile colitus, mild/moderate dementia, recurrent UTI
- Medications – donepezil, remeron, seroquel, multivitamin, hydrocodone/apap
- Other -

**Wound Placebo Control**

*Superior Wound*
*3.5 x 1.0 cm*
*Inferior wound*
*3.0 x 2.0 cm*

**Follow Up**

*Day 8 - CellerateRx treated inferior wound closed and Placebo control superior wound open in two areas.*
*1.5 x 1.0 cm and 0.5 x .2 cm*

*Day 17 - CellerateRx treated inferior wound still cloed and Placebo control superior wound still open 0.5 x 0.15 cm*

*Day 25*
*Both wounds now closed*

### Patient 6

- Age – 75 YO male
- Co-morbidities – obesity, venous hypertension and chronic edema BLE, type 2 DM on high dose insulin, PVD, diabetic polyneuropathy, stage 3 CKD
- Medications – aspirin, insulin, furosamide, spironolactone, simvastatin, vitamin D, etc
- Other – hydrocolloid dressing extra sticky and pulled off a large skin flap

**Wound CellerateRX**

*Skin flap is inferior wound, already had the superior wound*

*Pulled back flap to apply Cellerate RX powder*

**Follow Up CellerateRX**



*Day 3 - Steri strips left in place*



*Day 5 - Closed*



*Day 13 - Follow up*

### Patient 7

- Patient 93 years of age
- Co-morbidities - Congestive heart failure, mild dementia, Type 2 DM, insulin requiring, CAD post bypass and recent angioplasty
- Medications - duragesic patch, lantus insulin, atenolol, multivitamin, PM oxygen, lasix, spironolactone, zocor, zaroxolyn, plavix

**Wounds CellerateRX**








**Wounds Day 7**







**Wounds Day 14**

# Getting Cellerate Rx for your patient

- Part B reimbursement
- Device, not a biological, wound dressing
- Gel (A6011) and Powder (A6010)
- This is a specific collagen code
- Available  and reimbursed
- Sterile products – irradiated and not heat treated

# Cellerate Rx and Wound Care

## "Activated Collagen"

A Great Product to Depend On For Use In the Treatment of Wounds


Powder and Gel

Call Wound Care Innovations at 1-800-205-7719, extension 140

Dr. Jane Fore, docjanep@aol.com
Tri-State Wound Care and Hyperbaric Center, Clarkston, Washington